

The American Midland Naturalist

PUBLISHED BI-MONTHLY BY THE UNIVERSITY
OF NOTRE DAME, NOTRE DAME, INDIANA.

VOL. II.

OCTOBER, 1912.

NO. 11, 12*

NOTES ON OUR LOCAL PLANTS.

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The purpose of these notes is principally to serve as a record of the vascular plants that grow spontaneously or without cultivation in the extreme parts of Northwestern Indiana and Southwestern Michigan. With the exception of Lake and Laporte counties in the former, very few reports have been made in this region of our indigenous and introduced plants, and so in perhaps most instances these records are made for the first time. Though one may have a fairly correct idea of the plants that are to be expected to grow here, as given in our larger floras of the whole country or major parts thereof, so many changes have taken place in our local flora within the last decade or two, and are even now taking place that we can never be sure which plants have become extinct, or have always been locally absent, by reference to such works as Gray's or Britton's Manuals. In other cases plants even positively excluded from our area have been found, and some hardly to be expected are as a matter of fact quite abundant. In any case the only reliable list of plants is that prepared as the result of long and extensive trips throughout a more or less limited area. Even then unless the botanizing is done year after year regularly in the same places, certain plants that seem to appear and disappear periodically are likely to be overlooked, as I have had ample occasion to experience. This list, if so it may be called, is the result of more or less irregular investigation begun about 1896. In a number of instances records of plants present in the University herbarium antedate that year. I refer to a collection of plants made by Dr. Francis Powers who was instructor in botany at the University, and now is pro-

* October 12, 1912. Pages 267 to 306.

fessor of Anatomy. Probably the principal reason why no record of plants was made sooner of our locality is that the large collection of our local plants made by the Rev. J. Carriere, together with a large herbarium of European plants and other exchanges, and practically the whole biological museum of the University was destroyed by fire in 1879. About this time he became professor of botany at the College of St. Laurent near Montreal, Canada, and not very many specimens of local flora were added to the herbarium since his departure until rather recently.

We have preferred the title prefixed rather than the stereotyped "List" or "Flora" of S. W. Michigan and N. W. Indiana, because notes and observations as we have decided to include, would seem foreign to a mere list. In the matter of nomenclature, too, there may be what some will consider unwarranted peculiarities. Nomenclature under the systems of present expediency is largely a matter of opinion of a person, or aggregate of individuals many or perhaps most of which in the congresses which formulated these systems were expected to contribute a maximum of assent and vote, and a minimum of reason. In fact the votes that decided 1753 as the beginning of our botanical nomenclature were in some instances given and accepted from botanists in conclave so inadequate of scientific decision that some then had never even seen the inside of the Linnaean Species Plantarum of 1753! Being a matter largely of opinion no system of expediency that we have yet met with is even self-professedly or practically logical. No code more or less widely adopted with reservations by countries and sections and factions, merits even the encomium of honestly attempting to be consistent, no matter how many have given their support, and our systems of today are for the most part agreements more or less illogically formulated and assented to by a clique or clan for temporary expediency.

No code of nomenclature can be logical that presumes to begin with an artificial "starting point," because it presumes dogmatically to rule when science began. Any code that accepts impossible or stupid names because they enjoy priority alone does not, on the other hand, deserve the approbation of the scientist, nor certainly will win the approval of coming ages when we shall be judged logically on our real merits. Indisputably proved absolute historical priority alone as a principle deserves the consent of a reasoning mind. This is now admitted by our best botanists,

but few have the courage or some perhaps not the knowledge to dare follow this principle to its logical conclusion. The strongest objection to historical priority in plant names comes from the type of superficially educated botanists of our day, unacquainted with the Greek and Latin classics, unable without assistance in many cases to make up for their newly discovered genera or species names often that are either grammatical or correct. The difficulties standing in the way of the right system are none other than prejudice and ignorance, or better the prejudice of the ignorant, for none but the truly shallow have prejudices. These really do not deserve much consideration from the scientist whose end is the truth, the whole truth, and nothing but the truth, and is unhampered by motives of expediency in the face of eternal principles of reason.

If then is spite of the fact that due to newness of the field and vast erudition required to work it over satisfactorily, we are liable in trying to follow the principle of historical priority in the accompanying notes, to make many a mistake perhaps, we ask the indulgence of the reader in matters so difficult. In any case we shall have the consciousness at the start that we begin from a logical point of view, and we have therefore the hope that such mistakes will be entirely errors of interpretation. Regarding priority, we may not succeed in all cases to obtain the older or correct name, but we feel that we are placing no obstacle deliberately in our own way towards obtaining such, by application of a contradictory principle. Of blunders there will be not a few, but we shall do less injustice to the pre-Linnaean authors by giving the majority of them at least the credit denied them by our modern methods.

There will be those that will ridicule the idea of applying to our plants names used by Vergil, Theophrastus, Pliny, Dioscorides, Brunfels, Valerius Cordus, Dodonaeus, Camerarius etc., In most instances the names we use at present under our "expediency" codes are theirs anyway, and we might as well give them the credit due them, by writing e. g. *Adiantum* Theophr. instead of *Adiantum* Linn.; *Salix* Vergil, for *Salix* Linn. That a comparatively small number of the few hundreds of plants known before Linnaeus need have their names changed because that author had prejudices just as code makers today have prejudices, need not worry us needlessly, for more changes are made

in names every time a code goes out of fashion, than would be made by a reversion to historical priority. The criticism, if any there be, against our method as such, will we are sure, come only from the superficial opinions of such as either are unacquainted with the pre-Linnaean masters, or are unable to understand their works even if they tried to read them in the original classical languages. For the opinions of such we need care very little, and for their consolation we may ask them to refrain from unreasonable criticism, because we are entitled to our point of view in matters of opinions as well as they are entitled to another opinion.

Regarding the problem of decision as to the relative merits of the ancient Greek and Latin names, we must remember that the question was largely settled by subsequent authors even before Linnaeus. Our nomenclature of biology is Latin not Greek, and only the latter when first latinized. The very fact that hardly an author ever used any but latinized Greek names or derived Greek names for plants and animals, makes the above statement almost self-evident. The publication of the old Greek and Latin names was always held on a par and when absolute synonyms existed in both languages, the Latin name was invariably accepted, and up until the time of Linnaeus the Greek names were so carefully relegated to synonymy that it was considered a grave error to apply them to any newly discovered plant, even though their very fact of synonymy was so well known that it put them in a position that they could never have been mistaken even if newly used. No one ever presumed to use the name *Drys* for any new plant; for the older botanists knew it to be but the Greek name for *Quercus*, which every one always gave precedence. There seems to have been an apparent exception in case of *Pteris* which may have been given precedence to the Latin name. Both were used and often vaguely and indiscriminately.

No one but Linnaeus would ever have dared, unless by mistake, to use *Ptelea* for any new plant unless he thought it was an elm. Yet Linnaeus not caring for the confusion he might cause knew full well it was not an *Ulmus* and, because perhaps the name never could be used at all in nomenclature, he thought himself free to use it for a new American genus. We must give him credit at least for not foreseeing that at some time, our superficial Greek and Latin students of today meeting the

word referred to in Homer, Hesiod, Theophrastus, Theocrites, or Dioscorides might suppose that our American plant of that name grew in the Orient! As a rule, however, even Linnaeus left the Grecian synonyms of accepted Latin names severely alone, though he sometimes took a well sounding doubtfully interpreted name, and applied it to a new-world plant. Even in that case there was for example no reason whatever to take the old Greek name *Dodocatheon* and give it to a plant that already had a perfectly valid name, *Meadia*.

It is reasonable therefore to accept all the ancient plant names given before the era of printing on the same relative basis of priority as was held by the pre-Linnaean botanists generally. By accepting historical priority as our guide in nomenclature credit is given to whom it is due. No arbitrary or unreasonable principles need be applied, but only the principles of reason. This is not really a code; for a code implies some agreement, and seems to imply the arbitrary. Never until our own times has there been so much confusion of nomenclature, and never too have we been so much and frequently afflicted with new fashions of codes. There never really was any need whatever of any of them, and most botanists have begun to see that we would have made more progress had some refrained from stirring up a hornet's nest every time a new code is to be "proposed or emended?"

We hope that as a record of the plants in our locality these pages will appeal even to those who are prejudiced against historical priority, or are entirely indifferent to nomenclatorial problems. The names accepted as valid on the basis of 1753 as a "starting point" of biological science, will be given in capital letters so that the synonymy may be noted at a glance.

In regard to names of families or orders, we shall try as much as possible to accept priority as we have for genera and species. The old argument may be brought up here that families and orders have changed so much that many older family names, even pre-Linnaean ones, can not be considered in the same sense as now outlined. The family *Rosaceae* Boerhaave, may not include the same genera as now. If we reject it for this reason we may reject for a similar reason applied to genera, nearly all of Linnaeus' names. If any one now failed to attribute the name *Rosa* or *Lilium* to Linnaeus because segregates have since been made

from them, one should be rightly indignant. So applying the same principle to family names we have less difficulty in recognizing the type genus of a family for the name of the latter is usually built up from the former as type genus. In case of such families antedating 1753, as *Liliaceae*, *Rosaceae*, *Orchideae*, *Pomaceae*, (or *Pomiferae*) *Cichoraceae*, *Cucurbitaceae*, or even *Ferulaceae*, etc., there is very little difficulty for the merest tyro to guess rightly what the type genus must be. No matter how much the family may have been segregated from, we may be sure we are correct in reserving the name that contains the genera, *Rosa*, *Lilium*, *Orchis*, *Malus*, *Cichorium*, *Cucurbita*, *Ferula*, etc. are to be referred to them even though they be left as monogenotypic families.

When we consider on scanning any work, such as Bubani's *Flora Pyrenea*, Sprengel's *Genera Plantarum*, S. F. Gray's *Natural Arrangement of British Plants*, which have as their basic principle the historical priority of plant names, how many of the older classical ones still remain in our nomenclature, and that most of them were approved by Linneaus himself, we will see that the changes to be made to bring botany under the system of historical priority are comparatively very few. They would be fewer in fact in the long run than those made necessary now by the vacillating of modified codes. There will constantly be found newer names older than such we have since 1753 as a starting point. Every new manual has many new ones, the new Gray's Manual not excepted, though the authors pretend to have brought it in perfect accord to the rulings of the Vienna Code. Thus it seems that even this last of them all has not succeeded in preventing changes. The next will do no more to stop the confusion, but will add a little more perhaps by reason of one or other arbitrary ruling it may make. Codes are not what we need to clear up our difficulties. The safest and sanest system will, as thinking botanists of today admit, only come when we apply the method of reason alone, absolute historical priority.

Regarding citations of synonymy the original works have in nearly all cases been looked up. Even when the actual page is not quoted as happens in some cases, the citations were in most cases looked up in original works. It was at first thought that it would be better to quote only the author and the year of publication of any given name, thus making the list much shorter, As, however, some of the works do not ordinarily appear in the

synonymy of modern names, it was thought better to include such quotations as correctly as possible, and so it was found necessary to go over the whole nomenclatorial part of the list a second time at no inconsiderable inconvenience and loss of time.

References to other works more or less embracing in a general way our locality were made. Principal among these works are the following: Coulter, S., Cat. Flowering Plants of Ind., (1899); Higley, W. K. and Raddin, C. S., Flora of Cook Co., Ill. and Part of Lake Co. Ind., (1891); Smith, E. F. and Wheeler, C. F., Flora of Mich., (1881); Wilson, G. W., New and Little Known Members of Indiana Flora, Prov. Ind. Acad. Sc., (1905); Deam, C. C. Report of State Board of Forestry, (1911). Mr. Chas. Deam has also kindly sent me lists of plants collected in his botanizing trips over the region. Use has also been made of plants deposited in the U. S. National Herbarium and principally the collection given by Mr. Evermann, from the country about Lake Maxinkuckee.

It is impossible to give a nomenclatorial list of works consulted as it would run into the hundreds, even thousands, of volumes. A sufficient synonymy quotation in reference under each name will, however, supply this want. Whatever nomenclatorial difficulties may be suggested to us will later be discussed in footnotes under the particular plant names that demand explanation of an applied principle not yet explained.

Subkingdom PTERIDOPHYTA.

Order I. DORSIFERAE. Rivinus, (1690-1699).

Also Heucher, (1711?) ex Linn. Classes Plant, (1738). Ruppins, Fl. Jen. (1718), (1726) and (1745).

Filices Linn., l. c. p. 438, (1738); also Phil. Bot. P. 36, (1751) exclus. of *Lycopodiaceae* and *Selaginellaceae*, A. Haller, Enum. Hort. Agri., p. xii and 1 (1753), and Stirp., Ind. Helvetic (1742). *Epiphylospermae* Haller, Fl. Helv. p. 130. (1742.) *Tergiferae* J. Faber, in Hernandez, Rev. Med. p. 757, (1651 (?)) or of Caesalpinus acc. to the same (?) *Filices* R. Brown. **FILICALES** Britton, Manual p. 1. (1901). *Epiphylospermae* J. Ray Hist. I. 132, (1686) ex Haller. (1768) and do. (1769). Nomenclator. p. 154. (only in part.)

Family 1. **OPHIGLOSSACEAE** Presl, Pterid. 6. (1836).

BOTRYCHIUM Swartz, Schrad. Bot. 2:8. (1808).

Botrychium virginianum (Linn.) Swartz, do. 2: 111. (1800). Very common in low and rich woods throughout our region. Nos. 517, 9342 Rum Village, S. of South Bend, (St. Joseph Co.), 9135. Ryan's Woods N. Notre Dame, also 2488 Notre Dame. Also at Hudson Lake (Laporte Co.) Mishawaka, Granger (St. Joseph), Smith, Ind. (Laporte), Bellevue, (Elkhart), Munich, Mich. also St. Joseph and Benton Harbor, (Berrien Co.), San José Park, Lawton, Mich (Cass Co.) etc.

Botrychium ternatum (Thunb.) Swartz, do.

Osmunda ternata Thunb. Fl. Jap. 329, (1784).

Reported from Lake Co. in State Catalogue, also at South Haven, Mich. I have been unable to find it anywhere.

Botrychium ternatum var. *intermedium* Watson, Millers, Ind. [Babcock].

Botrychium ternatum var. *obliquum* Muhl.

Botrychium obliquum (Muhl.) Willd., Sp. Pl. 5, 53 (1810) Millers, Ind. [Hill]. Laporte Co. [Deam].

Botrychium ternatum var. *dissectum* (Spreng.). Laporte Co. [Deam].

Botrychium dissectum Spreng. Anleit. 3 p. 172, (1804). Laporte Co. [Deam].

Family 2. **OSMUNDACEAE** R. Brown, Prod. Fl.

Nov. Holl. 1: 161. (1810) and (1821) p. 810.

OSMUNDA Lobelius, (1571) also do Obs. p. 474. (1576).

Osmunda Tourn. El. Bot. (1694) p. 436, also Inst. Rei Herb. (1700) p. 547. *Osmunda* Linn. Gen. Pl. p. 322 (1737), Hort. Cliff. p. 472. (1737). **OSMUNDA** Linn., Sp. Pl. p. 1063, (1753). Gen. Pl. 484, (1754.).

Osmunda regalis Linn. Sp. Pl. p. 1065. (1753).

(*Osmunda regalis* Plumier Filic, p. 35, (1703) [?])

Notre Dame, Ind. no. 895, Webster's Crossing N. of Notre Dame, 9155. Granger, Ind. Also at North Liberty, Mishawaka, etc., (St. Joseph County.) Millers (Lake Co.) Tamarack, (Porter Co.) Near Michigan City (Laporte Co.) St. Joseph, Benton Harbor, Grand Beach, Niles and Bertrand, Mich. (Berrien Co.) Lawton (Cass Co.) etc., etc.

The plant sometimes has its sporangia completely infested

by a purple mold which destroys the fructification. (No. 2790.)
Stephensville, Mich., (Berrien Co.)

Osmunda cinnamomea Linn. Sp. Pl. p. 1066 (1753).

Found together with the preceding throughout our region in every county of both states above mentioned. No. 9319. Notre Dame, Ind.

Osmunda claytoniana Linn. Sp. Pl. p. 1066, (1753).

Osmunda interrupta Michx, Fl. Bor. Am. 2: 273, (1803).

Not quite as common as the two preceding, but found in all the counties of the area. Notably at Mineral Springs, Ind., (Porter, Co.) Near Woodland, Ind., North Liberty, Lakeville and north of Notre Dame, (St. Joseph Co.)

Family 3. **POLYPODIACEAE** R. Brown, Prodr. Fl.
Nov. Holl. 1: 145 (1810.)

ANGIOPTERIS Mitchell Diss. p. 29. (1748) and (1769), also Adanson, Fam. des Plantes 2, 21, (1763).

ONOCLEA Linn., Sp. Pl. p. 1062, (1753); Gen. Pl. p. 484. (1754)

Angiopteris sensibilis (Linn.)

Onoclea sensibilis Linn., Sp. Pl. do.

I have found this plant throughout the region embraced by this list. Specific mention of localities would be useless.

STRUTHIOPTERIS Cordus. De Plantis, II. b. (1561). Op. Posth. also *Struthiopteris* Willd. Ges. Nat. Fr. Berl. 3, 160 (1809) not *Struthiopteris* Haller Fl. Helv. 132 (1768) and same (1742) in part; nor Scopoli Fl. Car. (1760) and (1772) 2nd ed. nor Weis Pl. Crypt. Fl. Gw. 286. (1770) nor Ludwig-Boehmer Def. Gen. Pl. as Subgenus (1760) p. 479 = *Lomaria Spicant*. Nor *Struthiopteris* Bernh., Schrad. Jr. (1800), 126 (1801) = *Osmunda*.

MATTEUCIA Todaro, Syn. Pl. Acot. Vasc. Sic. 30, (1866). *Onoclea* Linn., (1753) in part. *Strutiofera* Muntig. *Pterinodes* Siegesb. Prim Fl. Pt. 19, (1736). *Filicastrum* Amm. Stirp. Ruth. 175 (1739) also Haller (145).

Onoclea Linn., (1753) in part.

Struthiopteris Cordi. Thalius Sylva Hercyna p. 119-121 (1586).

MATTEUCIA STRUTHIOPTERIS (Linn.,) Todaro, l. c. *Onoclea*. *Struthiopteris Germanica* Willd. l. c.

Struthiopteris Cordi var. γ , Haller, St. Helv. p. 149 (1742).

Onoclea Struthiopteris (Linn.) Hoffm., Deutsch. Fl. 2: 11, (1795)
Osmunda Struthiopteris Linn. Sp. Pl. p. 1066. (1753).

Near Woodland, Ind. (St. Joseph Co.). In a Tamarack bog.

CYSTOPTERIS Bernh. Schrad., Neues Jr. Bot. I. pt 2: 26 (1806).

Filix Adanson*, Familles. des Plantes 2: 20, (1763).

Cystopteris fragilis (Linn. 1762) Bernh. Schrad. Neues Jr. Bot. 1: pt. 2, 27. (1806). *Cyclopteris fragilis* S. F. Gray. Nat. Arr. Br. Pl. 2: 9 (1821).

Polypodium Filix fragile† Linn. Sp. Pl. p. 1091, (1753).
Polypodium fragile Linn., Sp. Pl. 2nd ed. p. 1553 (1763), also 3rd ed.
Filix fragilis Underwood, (1900). *Cystopteris Filix fragilis*. See
 Am. Mid. Nat. Vol. 2, No. I. (1911).

This plant is our common Brittle Fern and I have found it in all the counties of both states in our region. No. 407 Notre Dame, also 3398 (St. Joseph Co.) No. 9341 Smith, Ind. (Laporte Co.).

DENNSTAEDTIA Bernh. Schrad. Jr. (1800) 124 (1801).

Dicksonia L'Herit. Sert. Angl., 30 (1788).

Dennstaedtia punctilobula (Michx.) Moore, Ind., XCVII (1857).

Dicksonia punctilobula (Michx.) A. Gray, Man. p. 628 (1848).

Nephrodium punctilobulum Michx. Fl. Bor. Am. 2: 268 (1803).

Though I have never found this plant within the limits of the region, the fact of its having been reported from Steuben Co. makes it possible that it may yet be found.

*The name *Filix*, or translated literally "fern", was applied so generally by pre-Linnaean botanists to many genera promiscuously that its use for any one is highly objectionable. It is not beyond doubt that Fuchs' use of *Filix* as a name was meant as a generic designation or simply a "kind of fern." Adanson's use therefore would be a synonym for the name used by Fuchs, and Fuchs' designation is doubtful. Hence the inappropriate name *Filix* had better be entirely rejected. See note under *Aspidium*.

†The use of the trivial name, *Filix fragilis* without the hyphen would be the correct use after *Cystopteris* or *Filix* as *Cystopteris Filix fragilis* or *Filix Filix fragilis*, for those who claim to follow the rules of the codes, but there does not seem to be much consistency of authors in this matter. For further discussion of the subject see AM. MID. NAT. vol. II. pp. 97-122.

POLYSTICHUM Roth. Röm. Mag. 2: 106 (1799); also Bernh. Schrad. Jr. (1799).

Polystichum Achrostichoides (Mich.) Schott., Gen. Fil. ad. t. 9, (1834).

THELYPTERIS ACHROSTICHOIDES (Michx.) Nwd. *Dryopteris achrostichoides* (Michx.), Kuntze, Rev. Gen. Pl. 812, (1891). *Aspidium achrostichoides* Sw. Syn. Fil. 44. (1806).

Very common in every county in the region. No. 9023 (St. Joseph Co.) near Calien, Ind. 9332 N. of Notre Dame, 2737 Pine, on Wabash R. R. (St. Joseph.) Found also at Stephensville, Grand Beach, Benton Harbor and St. Joseph, (Berrien Co.) Mich. Millers, Ind., (Lake Co.) [Higley & Raddin]. (Porter and Laporte Co.), [Deam].

LASTRAEA Presl. Tent. Pterid. p. 73 (1836), Babing. Man. Br. Bot. p. 409 (1851) etc.

Aspidium Swartz, Schrad. Jr. Bot. 2: 4, (1800).* *Thelypteris Ruppius*, Haller Fl. Jen. p. 266, (1726), also Schmidel Ic. Pl. p. 45, (1762), Schott, not *Thelypteris* V. Cordus, and other pre-Linnaean authors.† *Dryopteris* Adanson, Fam. des Plants 2: 20, (1763), not *Dryopteris* Pliny, Dioscorides, Theophrastus, Gesner, Amman, Parkinson, etc.‡

Lastraea Clintoneana X spinulosa. (Laporte Co.) Deam.

* The name *Aspidium* of Dioscorides is found as one of the synonyms of *Alyssum* Diosc. l. 3, c. 95, and later as a synonym for *Attractylis*—*Cnicus sylvestris*.

†*Dryopteris* of Dioscorides, Pliny and Theophrastus is *Asplenium Adiantum nigrum* Linn. The use of the name for the genus in question is therefore objectionable as used by Adanson and must be relegated to synonymy on the basis of historical priority. See Fée, A. de Théocrite. p. 89. Smith, J. E., Fl. Graec. Prod. 2: 277.

‡*Thelypteris* of the Valerius Cordus and the other pre-Linnaeans is *Pteris aquilina* Linn, and assuming this plant to be the type of the genus *Pteris*, similar reasons to those of the preceding note invalidate the name. Likewise *Fiix* is to be rejected as a name both for this and any other genus of ferns as it is but a latin form of the Greek *Pteris* and was so used by Vergil and others. See Fée, A. Fl. de Verg. p. 56. According to Bauhin *Thelypteris* of Theophrastus, Pliny and Dioscorides refers to *Athyrium Fiix fæmina* (Linn.) Roth or *Asplenium Fiix fæmina* (Linn.) Bernh. Regarding the name *Lonchitis* as a name for the genus there seems to be considerable doubt. See J. E. Smith Fl. Graec 2: 273, though Tournefort seems to have adopted the name, Inst. Rei Herb., 538. (1700).

Lastraea intermedia (Muhl.).

Lastraea spinulosa var. *intermedia* (Presl.).

THELYPTERIS SPINULOSA var. *INTERMEDIA* (Retz). *Dryopteris spinulosa* var. *intermedia* (Muhl.) Underw. Nat. Ferns. ed. 4, 116, (1893.) *Aspidium intermedium* Muhl. Willd. Sp. P. I 5: 262 (1810). *Aspidium spinulosum* var. *intermedium* D. C. Eaton, Gray's Man. p. 665, (1893). *Dryopteris intermedia* A. Gray. Man. 630, (1848).

No. 9320 Notre Dame, No. 10095 Mineral Springs (Porter Co.) Ind. Found also at Grand Beach, Mich (Berrien Co.) Stephenville. Porter Co. [Deam].

Lastraea cristata (Linn). Presl. Tent. 77 (1836).

Aspidium cristatum (Linn.) Sw. Schrad. Jr. (1800), 37 (1801).

Dryopteris cristata (Linn.) A. Gray, Man. ed. 1, 631, (1848).

Thelypteris cristata (Linn.) Nwd. Porter Co. [Deam]. Also Lake Co. by the Author (No. 9754).

Lastraea Thelypteris (Linn.) Bory, Dict. 9, 233, (1826).

Aspidium Thelypteris (Linn.), Sw. Schrad. Jr. (1800) 40, (1801).

Dryopteris Thelypteris (Linn.), A. Gray Man. Ed. 1, 630, (1848). Found commonly. Chain Lakes. (St. Joseph Co.). Porter Co. [Deam]. Clarke, Ind. (Lake Co.). [Umbach]. Found by the author at Dune Park, Ind., (Lake Co.); also Chain Lakes, (St. Joseph Co.)*

ANCHISTEA Presl., Epim. Bot. 71, (1849).

Woodwardia J. E. Smith Mem. Acad. Tor. 5: 411, (1793).

Archistea virginica (Linn) Presl. l. c.

Woodwardia virginica (Linn.) J. E. Smith l. c. p. 412.

Blechnum virginicum Linn. Mant. 2: 307 (1771).

Tamarack swamps. Very abundant everywhere. No. 9648 Sagunay also Smith, Ind. (Laporte Co.) also W. of Woodland (St. Joseph Co.) Lakeville, Ind. Mineral Springs. Road near dunes of lake (Porter Co.) This in some of the bogs is the most

* These are the only species of *Lastraea* I have been able to record nor have I found others. Such plants as the following should be found as they are reported from nearby localities.

L. spinulosa, *L. Dryopteris* from near Chicago.

L. Goldieana found in Steuben Co., (Deam) and in central Michigan (Hicks). *L. hexagonoptera* Ann Arbor, Mich. (Clarke). *L. marginalis*, Sa-gatuck, Mich., (Umbach). *L. noveboracensis*, Steuben Co. (Deam), and possibly *L. Bootii* is to be located.

abundant fern we have. At Sagunay the plants are so common as to encroach even upon the *Cassandra calyculata*. Millers, Ind. [Higley & Raddin].

Reported also from Lake Co. I have found it in all the counties except Elkhart where it is probably also found in places I have not seen..

TRICHOMANES Dioscorides.

Tour. El. Bot. 430, (1694). Inst. R. H. 539. (1700). Bubani Fl. Pyr. 4: 424. (1901).

*ASPLENIUM** Tour. Inst. Rei Herb. 544, (1700) El. Bot., (1694) p. 434. Dodoneaeus Pempt. p. 465, (1583) etc. also Linn. Gen. Pl. p. 322, (1737), do. p. 485, (1754). Sp. Pl. p. 1078, (1753). *Asplenium* Matthioli (1554). Comment. Dios. p. 414, also do. (1552) p. 547, and (1560) etc. *Ceterach*† Caesalpinus, De Plantis. p. 575., also Euricius Cordus.

Trichomanes ebeneum (Ait.).

Asplenium ebeneum Ait. Hort. Kew. 3: 462, (1789).

Asplenium platyneuron (Linn.) Oakes D. C. Eaton, Ferns N. Am. 1: 24, (1879).

No. 9308 NW. of Notre Dame also 9413. Not infrequent. Found also in both counties in Michigan and Elkhart and Porter in Indiana. Millers, Ind. [Bastin]. Berry Lake, Ind. [Higley & Raddin].

Trichromanes acrostichoides (Swartz).

Asplenium acrostichoides Swartz do. p. 54. *Asplenium thelypteroides* Michx. Fl. Bor. Am. 2: 265, (1803). *Diplazium thelypteroides* Presl. Pterid. 114, (1836). Laporte Co. [Deam].

Found in Steuben Co. and may be found in our area. I have not as yet found it. Berry Lake, Ind. [Higley & Raddin].

ADIANTUM Hypocrates Eid. XIII. v. 40. etc. Theophrastus Hist. Pl. VII, 13. Nicander. Ther. V. 846. Dioscorides, Pliny, etc., etc., and nearly all pre-Linnaean writers.

Adiantum Tour. Els. Bot. p. 433, (1694). Inst. Rei. Herb. p. 543, (1700). *ADIANTUM* Linn., Syst. Nat. 1st ed. (1735);

*The *Asplenium* of Dioscorides, Pliny and some other pre-Linnaean authors has been taken out of this genus. See Bubani l. c.

† The genus *Ceterach* is now considered as a valid separate genus distinct from *Asplenium* Linn. by some authors.

Gen. Pl. p. 322, (1737); Hort. Cliff. p. 473, (1737); also p. 485 (1754) Sp. Pl. p. 1094 (1753.)

Adiantum americanum Cornuti Plant. Canad. 7 t. 6. (1635)
also Ray Hist., 148 (1686).

ADIANTUM PEDATUM Linn., Sp. Pl. p. 1095, (1753).

Common and observed in every county. No. 2714½ Chain Lakes (St. Joseph.) 2714 Stephensville, Mich. (Berrien Co.) Studebaker's Woods, South Bend, Indiana. Munich, Mich. La-
porte Co. [Deam].

PTERIS Theocritus. Eid III. 14 etc. and Dioscorides IV. 187.

Filix Vergil Georg. II, 189. Pliny XX, 55? Tour. Els. Bot. 429, 4694. Inst. Rei Herb. p. 536, (1700). *Filix*, Haller, Fuchs, Matthioli, Dodonaeus Lobelius, Tabernaemontanus, J. Ray, Blackwell, etc. *Thelypteris* Theophrastus IX, 20 also Dioscorides, and Valerius Cordus, (1560). *Avia* Columella, VI. 14. **PTERIS**. Linn., Syst. Nat., (1735); Gen. Pl. p. 322, (1737). Hort. Cliff 973 (1737), and g. 484, (1754) Sp. Pl. p. 1073, (1753). *Pteridium* Scopoli, Fl. Car. p. 169 (1760), not *Pteridium* Cordus l. c. = *Lastrea* or *Trichomanes* sp.

Pteris aquilina Linn., Sp. Pl. p. 1075, (1753).

Pteris nymphaea Dioscorides l. c. (?) *Filix nymphaea* Pliny l. c. *Pteridium aquilinum* (Linn.) Kuhn. *Pterium majus* Siegesb. Fl. Pet. p. 91.

Found in many places in all the counties. No. 2754. Notre Dame. 2754 ½ Chain Lakes (St. Joseph Co.) No. 496 Notre Dame. Lake Co. [Deam].

POLYPODIUM Theophrastus Hist. pl. 1, 9, c. 13 & 22. Dioscorides, etc. and all pre-Linnaean writers.

Polypodium Tour. Els. Bot. p. 437, (1694) Inst. Hist. Rei Herb. p. 540, (1700). *Polypodium* Linn., Syst. Nat., (1735) Gen. Pl. p. 322, (1737). Hort. Cliff. 474, (1737) and p. 485, (1754). Sp. Pl. p. 1082, (1753).

Polypodium vulgare C. Bauhin Pinax. p. 359. (1622), also Tour. Els. Bot. (1694), and Hist Rei Herb. (1700) Linn. Sp. Pl. 1082 (1753)

St. Joseph, Grand Beach, Michigan (Berrien Co.) Pine, Ind., (St. Joseph Co.) Mineral Springs and Tamarack (Porter Co.)

Family 4. SALVINIACEAE Reichenbach. Conspl. 30. (1828.)

AZOLLA Lamarck, Encycl I: 243, (1783.)

Azolla caroliniana Willd. Sp. Pl. 5: 541. (1810).

Very abundant in fall in back waters of St. Joseph River, especially in an oxbow loop near St. Mary's Academy, Notre Dame, Ind. No. 10116.

Family 5. EQUISETACEAE Michx. Fl. Bor. Am. 2: 281 (1803)

EQUISETUM Pliny. l. 26, C. B.

Hippuris Disocorides, of the Greek authors*, also of some other pre-Linnaean authors, Brunfels, Tragus, Amatus Lusitanus, Dodonaeus, etc. *Equisetum* Tour. Els. Bot. p. 424, (1694) also Inst. Rei Herb. p. 532, (1700). Linn. Syst. Nat., (1735); Gen Pl. p. 322, (1737); Hort. Cliff. p. 471, (1737); Sp. Pl. p. 1061, (1753).

Equisetum arvense (C. Bauhin), Linn., Sp. Pl. p. 1061. (1753).

Common everywhere and observed in every county. The plant is so abundant and crowded in places in St. Joseph County as to cover large patches preventing growth of other plants. No. 10117 Notre Dame, Ind.

Equisetum fluviatile Linn., Sp. Pl. 1062 (1753).

Equisetum limosum Linn. do.

Common in Tamarack swamps. No. 2777. two miles W. of Woodland (St. Joseph Co.) No. 10118 Hick's Crossing near Hudson Lake, (Lapeyre Co.) Also in Porter Co. Near Mineral Springs and Tamarack. Near Stephensville (Berrien Co.) also at Chain Lake and (St. Joseph Co.) Lakeville near Pine, Ind. etc. etc. Reported from Lake Co. [Hill] also [Umbach].

Equisetum hiemale Linn. Sp. Pl. p. 1062 (1753). No. 10119 Notre Dame. Found throughout the region by me. Whiting, Ind. [Higley & Raddin].

Equisetum laevigatum A. Br. Engelm. A. in Jr. Sc. 46: 87, (1844) No. 2807 East Chicago, Ill. (Lake Co.). N. L. T. Nelson, also Lake Co. [Hill]. Millers, [Higley & Raddin].

**Hippuris* was used by Dioscorides, 4: 47, for *E. limosum* Linn. Moreover the *Hippuris* Dioscorides 4: 46 is *Ephedra fragilis*.

The word *Hippuris* was used by some of the Greeks for the plants called now *Equisetum arvense*. The use of the former name for a genus of phanerogams as used by Linnaeus is objectionable.

Equiestum variegatum Schleich. Cat. Pl. Herv. 27. (1807.)
Lake Co. [Hill.]

Family 6. LYCOPODIACEAE Michx. Fl. Bur. Am. 2: 281.
(1803.)

LYCOPODIUM Dodonaeus, Pempt. 470 (1583).

LYCOPODIUM Linn., Gen. Pl. p. 323, (1737); Hort. Cliff. 476, (1737), p. 486, (1754); Sp. Pl. p. 1100, (1753).

Lycopodium lucidulum Michx. Chesterton, Ind. [Hill]. Pine & Millers, [Higley & Raddin]. Porter Co. [Deam].

Lycopodium complanatum Linn. Sp. Pl. 1104. (1753.)

Near St. Mary's Academy, Notre Dame; collected in 1897. Plant has now disappeared entirely from this locality. (Lake Co.) State Catalogue. Millers, Berry Lake [Higley & Raddin].

Lycopodium inundatum Linn. Sp. Pl. 1102. (1753.)

Reported from Lake Co. (Hill.) Millers, Pine, Tolleston, Berry Lake, (Lake Co.). [Higley & Raddin], I have not found it.

Lycopodium obscurum Linn. Sp. Pl. p. 1102. (1753.)

Lycopodium dendroideum Michx. Fl. Bor. Am. 2: 282

Reported from Lake Co. I have found sterile plants sparingly near Notre Dame, Webster's Crossing, under oak trees. no. 440. Once common, it is gradually disappearing. Also Pine & Millers, [Higley & Raddin].

Family 7. SELAGINELLACEAE Underwood, Nat. Ferns, 103 (1881).

SELAGINELLA Beauv. Prod. Aeth. p. 101. (1805).

Selaginella rupestris (Linn.) Spring. Martius Fl. Bras. 1: pt. 2. 118 (1840.)

Lake (Hill) N. of Notre Dame, Ind. no. 9547. Pine, Ind. [Higley & Raddin]. Rare.

Selaginella apous (Linn.) Spring do. p. 119.

Lycopodium apodum Linn., Sp. Pl. 1105, (1753).

Common in all the counties. No. 9548 Notre Dame, Ind. Lake Co. [Deam]. Pine & Clarke, Ind. [Higley & Raddin]. Colehour Ind. [Hill].

Subkingdom SPERMATOPHYTA.

Class I. GYMNOSPERMAE.

Order CONIFERAEE.

Bellonius, (1533). **Rivinus** (1690-1699).

Linn. Phil. Eot. 30, (1751); also Haller Fl. Helv. (1752) & (1753)

Family 8 **ABIETIDEAE** S. F. Gray, Nat. Arr. 2. 223, (1821).

Pinaceae Lindley Nat. Syst. Ed. 2, 313, (1836).

PINUS Vergil. Ecl. VII, 56, and Georg. I, 141.* Pliny.

Pinus Tour. Els. Bot. p. 457, (1694). Inst. Rei Herb. p. 585, (1700). *PINUS* Linn., (in part) Syst. Nat. (1735); Gen. Pl. p. 293, (1737); Hort. Cliff. p. 450, (1737); Gen. P. p. 434, (1754); Sp. Pl. p. 1000, (1753).

Pinus divaricata (Ait.) Sudw. Bull. Club. Iub. 20: 44, (1893)

Pinus Banksiana Lamb., *Pinus*, 1: 7 pl. 3, (1803). *Pinus sylvestris* var *divaricata* Ait. Hort. Kew, 3: 366, (1789).

No. 10101 Mineral Springs (Porter Co.) Nos. 9454, 9455, 6043, 2791, Notre Dame, Ind. Common in the dunes at Millers, Ind. (Lake Co.) Michigan City (Laporte Co.) The plants at Notre Dame have been planted along the roadsides are mentioned only because they frequently spread by seeds spontaneously but are seldom allowed to attain any size unless growing along hedges. No plants have been noted by me as spontaneous east of the dune region of Lake Michigan. Porter and Lake Co. [Deam].

Pinus Strobus Linn. Sp. Pl. p. 1001, (1753).

STROBUS WEYMOUTHIANA Opiz, Lotos 4: 94 (1854).

Strobus Strobus (Linn.) Small FL SE. U. S., p. 29 (1903). Genus *Strobus* Pliny?

No. 10021. Tamarack Bog, Sagunay, Ind. (Laporte Co.) Now common along Lake Michigan in Lake, Porter, Laporte and Berrien Counties. Laporte Co. [Deam]; Porter & Berry Lake, [Higley & Raddin]. Not abundant in the latter. The largest grove of natural White Pine I have seen near Michigan City. All the trees are of no great size. The most eastern report of the plant as growing outside of cultivation, or certainly not planted

**Pinus* of Vergil was *Pinus Pinea* Linn. (*Pinus hortensis* Vergil). *Πίτρος* of Theocritus. Πεύχη πιπερός Theophrastus, and Καννος.

by man is at Sagunay just outside of the boundary of St. Joseph Co. Though the tree has been extensively cultivated throughout the region I have found it wild nowhere except as noted above. I have been told that white pine is still to be found in a swamp several miles north of Hudson Lake.

LARIX Pliny, l. 16, c. 39, Vitruvius, Galen, St. Isidore, also Dodonaeus, Pempt. 168, (1582). Bauhin, Pinax 493, (1623) etc.

Pinus Linn. l. c. in part. *LARIX* Duhamel Traité des Arbres et Arbustes p: 331, (1775), also Adanson Fam. Pl. 2: 480, (1763) etc.

Larix americana Mich. Fl. Bor. Am. 2: 203, (1803).

No. 9566. Chain Lakes and Lydick (St. Joseph Co.) Ind. Also Sagunay and Tamarack, Ind. (Laporte Co.) Mineral Springs (Porter Co.) San José Park near Lawton, Mich., and near Paw Paw (Cass Co.) near Kalamazoo (Kalamazoo Co.). Common in Lake Co. Indiana (Dune Park.) Galien Mich (Berrien Co.) also at Lost Lake in the Kankakee Swamps, N. Liberty Ind. Lakeville, Woodland, Ind. (Along Turkey Creek Road). Pine, Ind. (St. Joseph Co.) Porter Co. [Deam]. Millers, Ind. [Higley & Raddin]. The longest tamarack swamp I have found is along the Turkey Creek Road 2 miles west of Woodland. It is rapidly being drained and the larger trees as in all the bogs are being cut for posts as they resist decay quite well. In a few years there will be no more of these trees in this locality where they were formerly so abundant. Even the small Larch bogs in the dunes of Lake Michigan or near them are rapidly being drained for cultivation, and so will disappear a remarkable flora with them comprising such interesting plants as *Drosera*, *Sarracenia*, *Cypripedium acaule*, *candidum*, and *Reginae*. *Oxycoccus macrocarpus*, *Cornus canadensis*, etc.

THUYA Homer, Theophrastus, also Pliny, l. 13, C. Bauhin Pin. 1623 etc.

Thuja Tour. Els. Bot. p. 459, (1694), also Inst. Rei Herb. p. 586, (1700). *Thuja* Linn., Syst. Nat. (1735); Gen. Pl. p. 378, (1737), do. 435, (1754). *THUJA* Hort. Cliff. p. 449, (1737), also Sp. Pl. 1002, (1735).

Thuja Theophrasti C. Bauhin, Pin. (1623) also Tour, l. c. Els. Bot. (1694) and p. 587 Inst, R. H. (1700).

THUJA OCCIDENTALIS Linn. Sp. Pl. p. 1002. (1753).

The only locality I know for this plant is in the dunes of N. Mineral Springs (Porter Co.) The trees are growing in a tamarack bog and are rapidly disappearing as are also the tamaracks themselves. Nos. 938, and 10102. Pine, Ind. [Hill]. Berry Lake, Ind. [Higley & Raddin]. Lake Co. [Deam].

Family 9. CYPRESSIDEAE S. F. Gray. Nat. Arr. (1820).

JUNIPERUS Vergil Ecl. VII, 53 & Ecl X.* 76 also Pliny?

Arkeuthos Theophrastus Hist. Pl. III. 4, also Diosc. I, 104. Theocritus Eid. I. V. 133 and Eid V. V. 97†. *Juniperus* Tour. Els. Bot. p. 461, (1694). Inst. Rei Herb. p. 558, (1700). *JUNIPERUS* Linn. Syst. Nat., (1735); Gen. Pl. p. 311, (1737); do 461, (1754). Hort. Cliff. p. 464. (1737).

Juniperus vulgaris Tragus, Hist. 1074 also Clusius (1601).

JUNIPERUS COMMUNIS Linn. Sp. Pl. 1040. (1753).

(St. Joseph Co.) along the St. Joseph River, and escaped near Graveyard (Cedar Grove Cemetery.); also at St. Joseph, Mich. (Berrien Co.) along the bluffs near the Lake. No. 3339 St. Joseph, Mich. Also nos. 9104 and 2717, Stephensville. Pine, Ind. [Higley & Raddin]. Cultivated or perhaps escaped?

Juniperus depressa Raf. Med. Fl. 12 (1830) (1817? incitata).

Juniperus vulgaris var. *depressa* (Pursh).

Juniperus prostrata L. c. (?)

Juniperus communis var. *depressa* Pursh, F., Fl. Am. Sept. (1816) p. 646. *Juniperus communis* var. *canadensis* Loud. Willd. Sp. Pl. 4: 854 (1806).

Juniperus communis var. *alpina* Gaud. Fl. Helvet. *Juniperus alpina* S. F. Gray. Nat. Arr. p. 226, (1821), 6: 301, (1830). *Juniperus sibirica* Burgsd. Anleit. n. 272, (1787). *Juniperus communis* var. *montana* Ait. Hist. Kew, p. 414. (1789) acc to Willd. l. c. *Juniperus communis* var. *γ.* Linn. Sp. Pl. 1040, (1753). *Juniperus communis* var. *γ.* J. *alpina* Smith Brit. Fl. 3: 1086, (1805). *Juniperus alpina* S. F. Gray Nat. Arr. p. 226, (1821).

Juniperus alpina Clusius, Hist. Pl. Rar. p. 38 (1601)! J. Bauhin Hist. p. 1650, also Ray, J. Syn. 444, (1724), etc., etc., acc. to some authors but the mid and plant really different.

*See Féé. Fl. Verg. p. 73, also Fl. Theocr. p. 14.

†See Féé, Fl. Theocr. p. 14.

St. Joseph Co. along the high sandy banks N. of Notre Dame Found also in similar habitat across the boundary in Berrien Co., Michigan. The patches are several meters in diameter and the branches closely prostrate, the smaller rising a few decimeters. Not abundant. Given in State Report also from Lake Co. and Porter Co. also Laporte [Deam].

Juniperus virginiana Linn., Sp. Pl. 1039. (1753).

Very abundant mixed with oak and hickory in woods. in sandy soil north of Notre Dame, Ind. especially in close proximity to the river or lake. Does not grow to any size in our region. St. Joseph and Berrien Counties. also Cass Co. Mich.; Laporte Co. Nos. 485 and 3342. St. Joseph, Mich. Millers and Whiting. [Higley and Raddin]. The tree commonly found in the East, Virginia, Maryland, etc., is a cultivated variety of *J. virginiana* brought over from Europe. It is found also in our region occasionally.

Family 10. **TAXIDEAE**. S. F. Gray Nat. Arr. 2: 226. (1820)

Taxaceae Lindley Nat. Syst. Ed. 2. 316, (1836).

TAXUS Vergil. Ecl IX. 30. Georg II., 113 & II. 257, Georg III. 448, & IV., 47. Also Dioscorides and Pliny.

Milos Theophrastus III. 4. *Taxus* Four. Els. Bot. p. 462, (1694); Inst. Rei Herb. p. 589, (1700). *TAXUS* Linn. Syst. Nat. (1735) also Gen. Pl. p. 312, (1737), do. p. 462, (1754). Hort. Cliff. 464, (1737); Sp. Pl. p. 1040, (1753).

Taxus minor (Michx) Britton Mem. Torr. Club. 5: 19. (1893).

Taxus baccata var. *m nor* Michx. Fl. Bor. Am. 2: 245, (1803).
Taxus canadensis Willd. Sp. Pl. 4: 856, (1806).

Found south of Stephensville (Berrien Co.) Mich., no. 2716. The plant was found also at St. Joseph, Mich. Always in rather shady woods very close to the Lake. Although I have travelled extensively over the dune region from Millers, Ind. to New Buffalo, Mich., I have never found the plant anywhere within the limits of the sand hills of Indiana, nor have I found quite the same kind of habitat as the plant favors higher north, that is rather moist sandy woods on high bluffs very near the lake.

(To be continued.)

NEW PLANTS FROM NORTH DAKOTA.—IX.

BY J. LUNELL.

Rosa dulcissima sp. nov.

Caudex spinis rectis, tenuibus, fragilibus, infra stipulas maioribus armatus. Stipulae per marginem totam vel ferme totam glanduloso-serratae, superne glabratae, subtus pubescentes. Rachis folii tomentulosa, saepe spinulosa. Foliola 5-9, in surculis usque 11, late ovata vel obovata, basi cuneata, apice obtuso vel acuto, simpliciter vel duplo serrata, 3-6 cm. longa, 2-4 cm. lata, conspicue petiolulata superne glabrata, subtus glauca et indumento magis minusve evanescente vestita. Flores 4-6 cm. lati, corymbosi. Receptaculum atratum, interdum setosum. Sepala paralleli-nervia, vehementer glanduloso-hispida, interne et marginaliter albido-lanata, apicibus longis glabratiss, exteriora pinnis mediano-nervatis glabratiss insigniter pinnatifida. Fructus globosus vel pomiformis, 12-15 mm. latus.

Stem armed with straight, narrow, weak prickles which are largest beneath the stipules. Stipules glandular-serrate for their whole length or nearly so, glabrate above, pubescent beneath. Leaf-rachis tomentulose, often with prickles. Leaflets 5-9, in young shoots sometimes 11, broadly ovate or obovate, with cuneate base and obtuse or acute apex, simply or doubly serrate, 3-6 cm. long, 2-4 cm. wide, prominently petiolulate, glabrate on the upper side, glaucous with a more or less evanescent indument beneath. Flowers 4-6 cm. wide, corymbose. Receptacle dark, with occasional setae. Sepals parallel-nerved, strongly glandular-hispid, white-woolly within and on the margins, the outer notably pinnatifid with glabrate, median-nerved pinnae and long, glabrate tips. Fruit globose or apple-shaped, 12-15 mm. broad.

The features specifically distinguishing this rose from my *R. gratiosa* are its almost constantly corymbose flowers and its strongly pinnatifid outer sepals. The latter has flowers either corymbose or solitary, and sepals essentially and constantly entire, only exceptionally bearing a minute lobe, with often fusiform heps.

Collected on or just inside of the external margin of the woodland surrounding Pleasant Lake, Benson County, on July 4 and September 2, 1912, by the writer.

Bilderdykia Convolvulus var. *pumilio* var. nov.

Caulis erecti, neque tortuosi neque procumbentes, 6-15 cm. alti. Flores solitarii vel pauci.

Stems erect, not twining, not procumbent, 6-15 cm. high. Flowers solitary or few.

Collected in ripe fruit and with the leaves displaying a splendid autumnal erythrophyll, by the writer at Leeds, Benson County, on August 5, 1912, in fields.

Antennaria aureola sp. nov.

Caules 10-20 cm. alti, in vastis, stratis coloniis generati, laxe vel appresse lanati. Stolones 2-6 cm. longi, foliosi. Folia caulinata magis minusve acutula, 1.5-2.5 cm. longa, superiora quidem anguste lanceolata, inferiora latius lanceolata vel etiam spatulata. Folia stolonica 2-3 cm. longa, 5-8 mm. lata, cuneato-obovata, apice brevi et obtuso ornata, ambobus lateribus appresse et obstinate sericeo-tomentosa. Capitula 1-10, cylindrica, involucra feminarum 8-10 mm. alta, pedunculis 5-15 mm. longis. Bracteae flororum feminorum nitore aureo in 4 series imbricatae, omnes apicibus longis acutis albis angustae, serie externa excepta cuius bracteae apicibus obtusis breviores et latiores sunt et maculam basilarem fuscam habent. Plantae stamineae ignotae.

Stems 10-20 cm. high, growing in large, matted colonies, loosely or appressedly woolly. Stolons 2-6 cm. long, leafy. Stem leaves more or less acutish, 1.5-2.5 cm. long, the upper narrowly lanceolate, the lower more broadly lanceolate or even spatulate. Stolon leaves 2-3 cm. long, 5-8 mm. wide, cuneate-obovate, with a short, blunt tip, densely and persistently silky-tomentose on both sides during the season, but after hibernation becoming green through partial loss of tomentum. Heads 1-10, cylindrical, pistillate involucres 8-10 mm. high, peduncles 5-15 mm. long. Inflorescence corymbose. Bracts of the pistillate flowers of a golden lustre, inbricated in 4 rows, all narrow with long, acute, white tips, except those of the outer row which are shorter and broader, with obtuse tips and a brown spot at the base. Staminate plants unknown.

Among the allies *A. aprica* Greene is a low plant, usually less than 10 cm. high, with pistillate involucres 6-8 mm. high, with sessile or subsessile heads and with generally obtuse pistillate bracts; *A. oxyphylla* Greene and *A. obovata* E. Nels. are much

taller plants, 20-30 cm. high, the former having leaves less than 2 cm. long and 5-8 mm. wide, not triple-nerved, and pistillate involucres 7-8 mm. high, the latter having stolons 5-8 cm. long, basal leaves large, 3 cm. long and 13 mm. wide, triple-nerved, and 3-7 heads, 1 cm. high, on pedicels 5-20 mm. long; and *A. Holmii* Greene has thin, obtuse, rosulate leaves with a peculiar, fine, glistening indument.

Crepis dakotana sp. nov.

Perennis. Caulis scaposus vel foliis 1, vel 2 anguste linearibus, bracteis haud dissimilibus subscaposus, glaber vel in parte superiore puberulentus, pedunculis sparsim glanduloso-hispidis 2-6 dm. altus. Folia rosulata, oblanceolata vel elliptica vel oblonga vel oblongo-spatulata, acuta vel obtusa, integra, repanda, inaequaliter dentata vel runcinata, una cum petiolo alato qui saepe laminae aequalis est vel longior 5-25 cm. longa, 1-4 cm. lata, omnino glabra. Capitula pauca, in caule eodem 2-5, longipedunculata, magnopere florifera. Involucra 10-12 mm. alta, glanduloso-hispida, atra. Bracteae externae breves, paucae (circiter 8), serierum 1 vel 2, lanceolatae. Bracteae internae longae, circiter 15, series unius, lineares. Achenia de basi apicem versus angustata, 4 mm. longa, striata, obscure fusca vel subatra. Pappus albus, mollis, achenio aequalis vel plerumque longior.

Perennial. Stem scapose or subscapose (then with 1 or 2 narrowly linear, bract-like leaves), glabrous or puberulent in its upper part with sparingly glandular-hispid peduncles, 2-6 dm. high. Leaves rosulate, oblanceolate or elliptic or oblong or oblong-spatulate, acute or obtuse, entire, repand, irregularly dentate or runcinate, 5-25 cm. long, including the winged petiole which is often as long or longer than the leaf blade, 1-4 cm. wide, entirely glabrous. Heads few, 2-5 on the same stem, long-peduncled, many flowered. Involucres 10-12 mm. high, glandular-hispid, dark. Outer bracts short, few (about 8), in 1 or 2 rows, lanceolate. Inner bracts long, about 15, in 1 row, linear. Achenes gradually tapering from base to apex, 4 mm. long, striate, dark brown or almost black. Pappus white, soft, as long as the achene or usually longer.

This species differs from *C. perplexa* Rydb. and *C. runcinata* T. & G. which have more or less pubescent or hirsute involucres and leaves subsessile or with short, winged petioles; from *C. riparia* A. Nels. which has obovate, hairy leaves, glandular-hispid

involucres and peduncles with longer hairs, achenes 6 mm. long, light brown, and pappus shorter than the achene; and from *C. denticulata* Rydb. by its small size, small obovate leaves and smaller solitary involucres, 1 cm. high or less.

The plant grows in wet soil and is represented in my herbarium from many different localities, but shows invariably a remarkable regularity in characters, with exception of two occasional forms. One of them, found at Pleasant Lake, with large leaves and long petioles, has involucres with scanty and almost glandless hairs; the other, from the shore of Lake Ibsen, has long, glandless hairs, on the petioles and midribs of the leaves. As type has been selected a specimen consisting of plants collected by the writer at Butte, Benson County, on June 27 and July 16, 1912.

Leeds, North Dakota.

WESTERN MEADOW RUES.—I.

BY EDWARD L. GREENE.

The species of *Thalictrum* in the Middle West do not appear ever to have been made the subject of any critical study by any one anywhere hitherto. In that whole great field, the utmost that has been done has been the collecting of fragments for the herbaria, and sending them forth labelled, some *T. dioicum*, some *T. polygamum*, and some *T. purpurascens*, but it is almost a rarity to find any one of those names correctly applied; or, if one must make an exception to that statement in the case of the name *T. dioicum*—a group easily recognized—the two other names, according to the showing which all our herbaria make, are much more often incorrectly assigned than correctly.

When I speak of herbarium fragments as being about all that we at the East have for light and guidance on the subject of the meadow rues of the prairie regions, I am not saying that the specimens are small. The fact is that many of them are so large as to fill an herbarium sheet of standard size; but if a plant is six feet high, or even four, and only the mere top of it, with its flowers or fruits taken, that specimen, though it measure ten inches across and fifteen inches lengthwise, is still but a fragment, and wholly inadequate to the determination of the species, for

such a specimen never shows the foliage of the plant, and in all genera which, like this one, are of so high and complicated organization as to be compound-leaved, the leaves themselves are of the greatest importance to the systematist, as offering in untold thousands of instances the very best of specific characters. Now most of our tall meadow rues everywhere have their leaves so large that a single one taken from toward the base of the stem will fill an herbarium sheet as completely as its panicle of flowers will fill another; but nothing is so rare among our thousands of herbarium sheets as a good leaf of a large thalictrum. So we have to deal with fragments; and the treatment of these plants in botanical manuals is also, and in consequence, always a failure. Not that incompleteness of herbarium material is the sole cause of failure. The foliage when present has been strangely neglected. In untold instances in which a large genus displays in its extent great diversity as to outline, texture, color, venation and indument of its leaves, these are recognized as furnishing characters, often the very best, for species; but in thalictrum, now as of old, men strain their eyes in search for some small marks of flower and fruit on which to establish species, and seem blind to the most pronounced differences among them in respect to leaves; this of course is partly due, though not wholly so, to the deficiency of specimens in this particular.

Whoever gathers herbarium material of these large meadow rues should not stop short of five full sheets from each clump or colony. There should be (1) a panicle of the staminate plant in flower, (2) the same of the pistillate at that stage, (3) a later gathering of a fruiting panicle in its full maturity (4) a perfect full-sized leaf from a pistillate plant, then (5) the same from a staminate one. In not a few species there is almost an extreme difference in outline between the leaflets of the pistillate plant and the staminate. This a nouncement, which I believe is here for the first made, they who are determined that plant recognition and description shall be short and easy will pass in silence, and try to discredit it in whispers. It is at least the presentation of a new difficulty in the systematization of the species. Nevertheless, the difference is only one of outline, when it exists at all. The color, texture, venation and pubescence are the same in both sexes of the same species; so that this difficulty is not at all insuperable where the specimens are made in full, as above directed.

The few new species, of which descriptions follow are mostly of that group of which the Virginian and Carolinian *T. purpurascens* is typical. Even in the Eastern States and adjacent Canada several clear species have been from time to time confused with that; and finally—and needlessly—that old name has been made to give place to a newer one in the newest manual. As for the several climatic regions lying between the northern Alleghenies and the middle Rocky Mountains, nothing seems to me more improbable than that true *T. purpurascens* should occur in any of them. The differences of environment are far too great.

Thalictrum Nortonii nov. sp.

Caulis 4–5 dm. altus, striatus, glaber. Foliola firma, superne glabra, glaucescentia, haud conspicue venosa, inferne pallida, ibisque venis tenuibus lutescentibus et lateraliter sparsim hirtellis percussa, ambitu subquadrato-ovata, basi subcordata, supra medium 3–5-lobata, lobis incisis acutis, terminalia 3 cm. longa, lateralia minora. Panicula plantae foemineae subcongesta. Achenia oblique fusiformia, subsessilia, costis continuis, valde elevatis acutis et leviter sinuosis notata, pericarpio toto sub lente minutissime asperato.

Type specimens of this far western member of the *T. purpurascens* group are in the herbarium of the New Mexico College of Agriculture and were collected in Riley Co., Kansas, in 1896, by Mr. J. B. Norton. They consist of three sections of one pistillate plant in fruit, but with basal leaves cut off and probably thrown away. What are probably the flowers of the same species, by the same collector and from the same place, are in the herbarium of the Wyoming University. The specimens are a fragment of a staminate plant, and one of a pistillate, both in good flowering state. The stamens are pendulous, the filaments being capillary, and hardly clavate under the anthers.

Thalictrum albens nov. sp.

Planta metralis, caule tenui glabro, laeviusculo et pulchre purpureo-rubente, foliis paucis remotis sessilibus albentibus instructo, vertice paniculam fertilem parvam subaphyllam gerente. Foliola submembranacea, utrinque valde glauca, supra sparsim setulosa, subtus magis crebre albo-hirtella, ambitu subquadrata vel quadrato-ovata, basi plerumque obtusa, apice 3–5-lobata

lobis breviculis acutis, terminalia 2-3 cm. longa, lateralia 2 cm. longa, interdum oblongo-ovalia et integerima. Carpella breviter fusiformia, sessilia, obtuse costata, glaucescentia et minutum hirtella.

Very elegant slender red-stemmed almost white leaved plant from Valhalla, North Dakota, collected 8 Aug., 1902, by L. R. Waldron; type specimen in Herb. Univ. Wyoming. It is the only member of the group of *T. purpurascens* I have seen with glaucescent as well as pubescent carpels.

Thalictrum Sandbergii nov. sp.

Caulis metralis, validulus, anguloso-striatus, sparse et minutum setulosus folia ad 5 ampliuscula firmaque gerens et vertice paniculam fertilem pro planta parvam. Foliola supra glauco-virentia et sub lente sparsissime minutim et adpresso setulosa, subtus glauca et venis elevatis atque pube albo notata, terminalia 2-3 cm. longa late obovata, leviter et obtuse 3-lobata, lateralia minora, oblique ovalia saepe integra, interdum 1-3-dentata. Carpella immatura ovalia, sessilia, pilis brevibus albis crebre hirsutula.

Remarkable species of the white-stemmed group, known to me in only a single but very good plant on U. S. Herb. sheet 340, collected at Itaska Lake, Minn., July, 1891, by J. A. Sandberg; his No. 1193, labelled "*T. polygamum*." The species would be another of those confused elements of the guessed-at "*T. dasycarpum*" of recent writers. The strictly staminate plant of *T. Sandbergii* would be an interesting thing to see, if such exist. The type specimen is mainly pistillate, but two or more stamens persist in most of the heads of perhaps only half-grown carpels.

Thalictrum Wightianum nov. sp.

Caulis praecultus, striatus, glaucescens, glaberrimus, purpurascens, foliis amplis sessilibus obsitus. Foliola subcoriacea, superne pallide virentia et venis tenuibus albidis divergentibus notata, inferne glauca, ibique venis albidis elevatis ramossissimis manifestim reticulata, et setulis perpaucis albis, pricipue secus venis, obsita, terminalia 3-4 cm. longa, ambitu obovata, basi subcordata, apice leviter, late et inaequaliter 3-lobata, lobis obtusis, lateralia terminalibus dimidio minora, interdum ovalia, obtusa et integerima. Panicula fertilis nuda, laxe lateque ramosa usque 4 dm.

longa. Carpella brevia, sessilia, plerumque elliptico-fusiformia, interdum breviora et ovali-elliptica, glaberrima, utroque latere costis 2-3 rectis acutiusculis percussa.

Along the Kalamazoo River at Allegan, Michigan, 11 Sept., 1902, collected by W. F. Wight. Two sections of a plant noted on the labels as "5 feet high" are on U. S. Herb. sheets 430181 and 430182. Being in good leaf and fruit at the date recorded indicates a plant flowering late in summer. It is of the *T. purascens* group, and the leaflets are revolute.

Thalictrum amabile nov. sp.

Caulis verosimiliter metralis, striatus, glaber, pallide purpurascens, foliis sat amplis, sessilibus usque ad medium paniculae laxae instructus. Foliola firma, superne saturate viridia glaberrimaque, inferne glauca et indumento biformi, nempe, e papillis minutis numerosissimis et globulis majoribus paucas crystallinis sessilibus conspersa, terminalia ambitu rotundata, 3 cm. diametentia, apie leviter et latissime 3-lobata, lobis subaequalibus subtruncatis mucronatis. Rami paniculae plantae stamineae ascendentis, laxiflori. Flores mediocres albicantes. Sepala 4 ob lanceolata, acuta. Filamenta nec numerosa, nec valde elongata neque manifestim clavellata, pendula. Antheræ pro affinitate plantae breves, lineari-oblongae, aristato-mucronatae.

Only the staminate plant seen, and that in two specimens from near Mansfield, Ohio, collected in June, 1896, by E. Wilkinson. On specimens showing so marked a habit, and so many characters of leaves and staminate flowers, there is little or no risk incurred in publishing a species on the one sex. The fine close papillose indument of the leaves beneath appears only under a very strong lens, but the sparse only subsessile larger transparent processes of the epidermis are visible with the simplest hand lens.

Thalictrum Moseleyi, nov. sp.

Planta ut videtur metralis et ultra, caule valido, striato, purpurascente, glaucescente, glaberrimo. Folia inferiora ignota, superiora sessilia, supra saturate viridia, subtus glauca, undique glaberrima. Foliola 2-3 cm. longa, plerumque elliptica integra, interdum paulo latiora et 1-2-dentata. Panicula plantae stamineae ampla, circa 3 dm. lata, confertiflora, ramulis ultimis late patentibus vel modice recurvatis. Sepala oblongo-elliptica, albescentia.

Stamina numerosa, pendula; filamenta tenuia seorsim leviter clevellata antheris oblongis vel linear-i-oblongis triplo longiora.

Type specimen in U. S. Herb., sheet 431249, collected in the township of Oxford, Erie Co., Ohio, 8 June, 1895, by E. L. Moseley. The specimen is labelled, by the collector, *T. polygamum*, though it bears no relation to that group of plants whose mark is upright clear white filaments bearing very short anthers. *T. Moseleyi* is clearly of the *T. purpurascens* alliance, though wholly distinct from that by its foliage alone if by no other character. One peculiarity of the present plant is, that what one would have liked to call its terminal large leaflets are all completely divided into three leaflets, the middle one of which is petiolulate, the other three sessile; and while the trifoliate terminals are together, as usual, larger than the laterals, some laterals are larger than the largest separate member of the triple terminal.

It has come of my long and careful study of thalictrum leaves of all groups of species, and from all over our country, that I place such dependence on these organs for specific distinction as to dare publish species, the fruits of which are unknown. Let the pistillate plants, and the fruits of each be what they will, and even just alike, if it so prove, this and *T. amabile* above, are valid and very different species.

Thalictrum perpensum nov. sp.

Caulis modice tenuis, 4-6 dm. altus, laete stramineus, plus minusve striatus, aut omnino glaber aut pilis setulosis brevibus sparsissime obsitus. Folia haud ampla, inferiora petiolata, superiora sessilia. Foliola terminalia 2-3 cm. longa, late obovata, apice trilobata lobis latis, brevibus, obtusiusculis, lateralia interdum ovalia, integra, omnia superne laete viridia et glabra, inferne pallida et sparse albo-hirtella. Florum pedicelli, nec non sepala extus, sparse pilosi. Stamina alba, erecta, clavellata. Carpella oblique elliptica, distincte stipitate, sparsissime setulosa.

Type specimens collected by myself on low prairie land about Strathroy in western Ontario, in June, 1910. It is the plant referred to by me under the name of *T. dasycarpum* in Vol. I. of this Journal, p. 104. I have now become convinced that real *T. dasycarpum* is a much larger plant, and of the group of *T. purpurascens*, while *T. perpensum* is unquestionably of the *T. corynellum* alliance by its clear-white filaments all clavate and

standing upright. On the page of the NATURALIST quoted I have attributed my plant to low prairies of Southern Michigan. I observed it there only from my window on the railway train, but have no doubt that the plant was the same afterwards studied and collected in adjacent Ontario; through I must say that the low white-flowered prairie plant quite failed as we passed into the wooded and marshy regions skirting the St. Clair River and lower Lake Huron, not reappearing until we were well out upon the prairie region of Ontario. Moreover, Mr. C. K. Dodge, who has sent me meadow rues from all about Port Huron, has not met with this plant there. Nor have we, in U. S. Herb., any member of this particular group from any part of Michigan. All that has been named "*T. polygamum*" from those parts belongs to the *T. purpurascens* alliance. There is, however, one sheet of exactly *T. perpensum* in the National Herbarium, but this also comes from Ontario, where it was gathered at Elmira, 13 July, 1899, by L. M. Umbach. I am, however, quite confident that the white-flowered one of the Southern Michigan prairies will prove to be the same.

ACHILLAEA MULTIFLORA HOOK IN NORTH DAKOTA.

BY J. LUNELL.

Planta de rhizomate brevi oriens, perennis. Caules singulares vel interdum duo, usque inflorescentiam plerumque simplices, nonnumquam autem prope basin in 2-3 ramos principales divisi, supra corymbosi, 0.6-1 m. alti, leviter lanati, imprimis in iugis de basibus foliorum utrinque descendantibus. Folia basilaria et surculorum sterilium inferiora petiolata, caulina sessilia, numerosa, linearia vel anguste linearilanceolata, 2-10 cm. longa, 0.5-1 cm. lata, in surculis sterilibus glabrata, in plantis fertilibus superne laxe, subtus quidem densius lanata, ad glabritudinem magis minusve proclivia, pinnatifida lobis primis in lobis spinulosodentatis mensurae variabilis iterum fissis. Inflorescentia corymbus est compositus, apice plano vel plerumque ramis remotis de axillis eius foliorum ~~in~~ infimis oriundis centralibus ~~m~~ magnopere altioribus, ramis eius rigidis et robustis. Capitula numerosa, 7 mm. alta, 4 mm. lata. Involucra 4 mm. alta, 4 mm. lata, late campanulata,

pubescentia, bracteis carina viridi flavidofuscis. Flores radiati 5-7, involucro multo breviores, albi, parvi, 1-1.5 mm. longi, 1.5-2 mm. lati, 3-lobatii, lobo medio minimo. Planta odorem aromaticum mitem emittens.

Perennial from a short rootstock. Stems solitary or sometimes two, usually simple up to the inflorescence (but occasionally divided near the base in 2 or even 3 main branches), corymbosely branched above, 0.6-1 m. high, loosely woolly, the more so on ridges decurrent on both sides of the bases of the leaves. Leaves, basal and those lower of the sterile shoots petioled, those of the stem sessile, numerous, linear or narrowly linear-lanceolate, 2-10 cm. long, 0.5-1 cm. wide, on the sterile shoots glabrate, on the fertile plants loosely lanate on the upper side, more densely so on the lower, with a tendency for becoming more or less smooth, pinnately cleft, with the lobes again secondarily cleft in spinulose-dentate lobes of variable size. Inflorescence a compound corymb, flat-topped or usually with the peripheral branches from its lowermost leaf-axils rising considerably higher above the central ones, its branches being stiff and stout. Heads numerous, 7 mm. high, 4 mm. wide. Involucre 4 mm. high, 4 mm. wide, broadly campanulate, pubescent, its bracts yellowish-brown with green keel. Rays 5-7, very much shorter than the involucre, white, small, 1-1.5 mm. high, 1.5-2 mm. wide, 3-lobed, the middle lobe smallest. The plant has a faint aromatic odor.

The first time the writer noticed this plant in the Turtle Mountains was on July 7, 1910. I found two plants, both of them sterile, "fern-like" shoots. A thorough search for the fertile plant was futile. On July 29, 1910 and on June 4, 1911 I secured one shoot at a time. My first successful find was unexpected. On May 26, 1912 I drove on a mountain road to Fish Lake (altitude 2600 feet), and from the carriage I perceived a stiff, cinnamon-colored plant about a meter high, in a distance. I told the driver to stop the team and went for it. At last I had found my plant, bearing a small green shoot and the faded stem and inflorescence from last year, the persistent disks furnishing the bright color. If it had had the dull, ashy gray color characterizing the faded involucres of *A. Millefolium* or *A. lanulosa*, it would not have attracted my attention. Now I had an unmistakable clue, and on August 22, 1912, I at last collected the flowering plant in the vicinity of St. John, Rolette County.

Gray reports this plant as growing in Saskatchewan to Fort Franklin and Behring Strait (at that time Assiniboa was a separate province, not as now incorporated with the first named). It was therefore quite unexpected to meet such an extremely northern plant in North Dakota. It is described as 2 feet high, with 10 or 12 rays. Our plant, reaching a length of 1 m., has only 5-7 rays, and if there are more differences, they can only be ascertained by a confrontation with Hooker's type or some of the northern plants. Until then, and if some additional differential characters should warrant the change of name, my inclination of naming this species *A. chelonica* must continue to be suppressed.

Leeds, North Dakota.

TITHYMALOPSIS AND DICHROPHYLLUM, SYNONYMS.

BY J. A. NIEUWLAND.

The most logical treatment of our Euphorbiaceae is that of Dr. J. K. Small in his Flora of the South Eastern United States.* The heterogeneous group of plants commonly aggregated under the name *Euphorbia* he has separated into a number of natural genera, some like *Tithymalus* and *Chamaesyce* recognized by Theophrastus or Dioscorides, and all pre-Linnaean botanists.

This impossible aggregate, *Euphorbia* Linn. was accepted almost without question or objection by manual writers in our country in spite of the fact that no real Euphorbias are to be found native in our country. The typical Euphorbias are succulent spiny plants of the old world like *E. officinarum* Linn. or *E. antiquorum* Linn., and the name should disappear from all our American manuals as it has from the Flora of the South Eastern United States.

Besides *Tithymalus* and *Chamaesyce* among others, the genera *Poinsettia* R. Graham, (1836), *Tithymalopsis* Kl. and Garcke (1859), and *Dichrophyllum* Kl. & Garcke (1859), are also recognized by Dr. Small. Several or all of these have been published as genera under older names by Rafinesque, and I have been unable to guess why this author's perfectly valid names in two of the three instances have not been accepted in the Flora of the South Eastern United States, unless the author has entirely overlooked them, and this, strange to say, though every one of Rafinesque's

names are noted in the Kew Index, and should therefore have come up for consideration when the genera were taken up.

Rafinesque's *Agaloma* antedates Klotzsch and Gärcke's *Tithymalopsis* by a score of years. Moreover, there is little room for quibbling about the identity of the names as the author, though admitting a considerable number of species to the genus, clearly points out which plant is the type of his new group. He says: "Agaloma corollata R. Euph. do. O. type of the G." Any group of correlated species segregated from the Linnaean *Euphorbia*, and containing *Euphorbia corollata* Linn. ought to be included under Rafinesque's name.

Klotzsch and Gärcke's *Dichrophyllum* is likewise preceded by Rafinesque's *Lepadena*,* under which he quotes *Euphorbia marginata* Pursh. In the same pages of revision of *Euphorbia* Rafinesque protests that the then recently published *Poinsettia* Graham (1836) was anticipated in 1833 by his own *Pleuradema*, though he had in 1825 made another *Pleuradenia* (=Collinsonia sp.). Graham's name enjoys validity therefore for this third genus.

Following is the synonymy of the genera with some of the transferred species.

AGALOMA Raf. Fl. Tell. p. 94 (1836).

Tithymalopsis Klotzsch & Gärcke, Monatsb. Acad. Berl. (249) (1859).

Euphorbia Linn. Sp. Pl. 450. (1753) pro parte.

Agaloma corollata Raf. do. p. 95.

Tithymalopsis corollata Kl. & Gärcke. l. c.

Euphorbia corollata Linn., Sp. Pl. p. 459 (1753).

Agaloma polyphylla (Engelm.)

Tithymalopsis polyphylla (Engelm.) Small l. c. Fl. S. E. U. S. p. 716 (1903).

Euphorbia polyphylla Engelm.

Agaloma gracilis (Ell.)

Tithymalopsis gracilis (Ell.) Small. l. c.

Agaloma eriogonoides (Small.)

Tithymalus eriogonoides Small. l. c.

Euphorbia eriogonoides Small.

Agaloma mercurialina (Michx.)

Tithymalopsis mercurialina (Michx.) Small, l. c.

Euphorbia mercurialina Michx.

Agaloma Curtissii (Engelm.)*Tithymalopsis Curtissi* (Engelm.) Small, I. c.*Euphorbia Curtissii* Engelm.**Agaloma exserta** (Small).*Tithymalopsis exserta* Small, I. c. p. 717.**Agaloma Joorii** (Norton).*Tithymalopsis Joorii* (Norton) Small, I. c.*Euphorbia corollata* var. *Joorii* Norton.**Agaloma zinniflora** (Small).*Tithymalopsis zinniflora* Small, I. c.**Agaloma apocynifolia** (Small).*Tithymalopsis apocynifolia* Small, I. c.*Euphorbia apocynifolia* Small.**Agaloma discoidalis** (Chapm.)*Tithymalopsis discoidalis* (Chapm.) Small, I. c.*Euphorbia discoidalis* Chapm.**Agaloma olivacea** (Small)*Tithymalopsis olivacea* Small, I. c.*Euphorbia olivacea* Small.**Agaloma paniculata** (Ell.)*Tithymalopsis paniculata* (Ell.) Small, I. c.**Agaloma Ipecacuanhae** (Linn.)*Tithymalopsis Ipecacuanhae* (Linn.) Small, I. c. p. 716.*Euphorbia Ipecacuanhae* Linn., Sp. Pl. 455, (1753).*Vallaris ipecacuanha* (Linn.) Raf. Fl. Tell. 96. (1836).**Agaloma arundelana** (Bartlett).*Euphorbia arundelana* Bartlett. Rhod. 13, p. 164 (1911).**LEPADENA** Raf. Fl. Tell. p. 96 (1836).*Dichrophyllum* Klotzsch & Gärcke, Monatsb. Acad. Berl.

249 (1859).

Euphorbia Pursh. Fl. Am. Sept. II. 249 (1814) pro parte.**Lepadena marginata** (Pursh).*Lepadena leucoloma* Raf. I. c.*Dichrophyllum marginatum* Kl. & Gärcke, I. c.*Euphorbia marginata* Pursh. Fl. Am. Sept. II. 607, (1814).**Lepadena bicolor** (Engelm & Gray).*Dichrophyllum bicolor* (Engelm & Gray) Kl. & Gärcke, I. c.*Dept. of Botany**University of Notre Dame.*

CIRSIUM IN NORTH DAKOTA.

BY J. LUNELL.

1. CIRSIUM NEBRASKENSE.

Carduus nebrascensis Britton, in Britton and Brown, Ill. Flora III., p. 487 (1898).

Cirsium nebrascense Lunell.

This species is found occasionally mixed with the following variety in meadows and pastures, and in its natural, undisturbed growth it reaches the same size as the latter. Like the latter it has the pappus-bristles of the outer flowers barbellate, and of the inner plumose. Its involucres are glutinous. It can be produced pathologically from the following by cutting or otherwise injuring the stem, and the parts growing out afterwards above the injury have entire or slightly toothed leaves.

2. *Cirsium nebrascense* var. *discissum* var. nov.

Folia lanceolato-oblonga vel lanceolata, lobis dentatis triangularibus oblongis vel lanceolatis profundis magis minusve spinosis vestita. Involucra et seti papposi speciei consimiles.

Leaves lanceolate-oblong or lanceolate with dentate triangular, oblong or lanceolate, deep lobes, more or less prickly. Involucres and pappus-bristles as in the species.

This is the most common thistle in the state, and has been identified under various different names. The state institutions have agreed about *Cnicus undulatus* as the correct name, as has been repeatedly shown in their bulletins of earlier and later dates. An exalted eastern institution of learning has called it *Cnicus altissimus filipendulus* (in common with the species), and this identification stimulated me to spend many hours on physical exercise of changing the original position of bushels of dirt, for the futile purpose of unearthing its tubers, which were nothing but imaginary quantities as far as this thistle is concerned. I have myself been used to recognize it as *Carduus Flodmannii* Rydb., which suggestion was accepted by Dr. F. Petrak when the North Dakota plant of my collection was incorporated with his *Cirsiotheca universa* II., no. 19 (1911) as *Cirsium Flodmannii* Petrak. But Dr. Rydberg's species has its pappus-bristles plumose (vide Memoirs of the New York Botanical Garden I, p. 451 (1900),

or Flora of Montana), and its barbellate outer bristles place our plant with *Cirsium nebrascense*.

It would certainly have been in better harmony with the conception of these plants viewed through North Dakota glasses if the variety had been discovered first and become the species.

3. *CIRSIUM MEGACEPHALUM*.

Cnicus undulatus megacephalus Gray, Proc. Am. Acad. 10: 42 (1874).

Carduus megacephalus A. Nels., New Manual of the Botany of the Central Rocky Mountains, p. 587 (1909).

Cirsium megacephalum Lunell.

This is a short, stout and rigid plant, probably not widely distributed within the state. The only locality from which it is known to me is Pleasant Lake, Benson County, where it is growing sparsely along the railroad.

4. *CIRSIUM MUTICUM*.

Cirsium muticum Michx., Fl. Bor. Am. II.: 89 (1803).

This beautiful thistle grows in the sloughs of the Turtle Mountains, and has also been reported from Walhalla, Pembina County.

5. *Cirsium arvense* var. *HORRIDUM*.

Serratula arvensis L., Sp. Plant. ed. 1, p. 820 (1753).

Cirsium arvense Scopoli, Fl. Carn. ed. 2, II, p. 126 (1772).

Cirsium arvense var. *horridum* Wimmer et Grabowski, Fl. Silesiaca II, p. 92 (1828).

Known as Canadian thistle in this country, it got its variety name on account of its abundance of prickles, which in combination with its nearly irrepressible tendency for spreading and its ability of suffocating almost any other vegetation make it one of the most formidabile and pernicious weeds known. It grows not only in fields and pastures, but establishes itself in wet meadows and sloughs. I have one specimen from Colorado collected by Mr. Geo. E. Osterhout, and I do not know if the species grows on this continent. In Europe the variety is exceptional, and the species common almost everywhere. The latter is a comparatively harmless plant with short, sparse prickles or often nearly unarmed, and without apparent disposition for exclusive appropriation of large patches of ground, and many farmers do not know its name or ever noticed it, and Linnaeus referred it to the genus *Serratula* which is not even a thistle.

Leeds, North Dakota.

MIGRATION OF OUR BIRDS IN THE SPRING OF 1912.

BY BROTHER ALPHONSIUS, C. S. C.

This year the first migrants were two weeks later than their usual dates for arriving. The Bluebird and Song Sparrow were three weeks late. A number of species that may be seen in March, when the month is mild, did not arrive until April. Such were the Mourning Dove, Chipping Sparrow, Vesper Sparrow, Cowbird, Red-winged Blackbird and Kingfisher.

In April the average temperature for the whole month was below 55°, which caused many of the birds that may be seen even in March to come as late as the 5th or 10th of April. Among these tardy arrivals were the Kingfisher, Flicker, Golden-crowned Kinglet, Cowbird and Chipping Sparrow.

In May the temperature rose to 68° on the 2nd and remained there for several days. Immediately a strong influx of warblers and other species was noticeable. Twenty species arrived during the first six days. There was then a gap of seven days, during which the temperature was below 68°, with no new arrivals. Although the temperature did not rise above 68° until the 19th, still the migration was resumed on the 13th, when the thermometer registered 45° at 9:50 A. M. Between this date and the 19th, seventeen species arrived.

The period in which warblers arrived was from April 16th until May 26th—40 days. The total number of warblers seen was twenty.

Migrants not seen this spring were: Purple Finch, Hell Diver, Maryland Yellowthroat, Purple Martin, Dickcissel, Sparrow Hawk, Wilson Warbler, Long-billed Marshall Wren, Yellowlegs, Prairie Horned Lark, Hummingbird, Yellow-bellied Flycatcher, Black-billed Cuckoo and Chickadee.

MARCH

14 Robin	22 Song Sparrow
14 Killdeer	25 Bluebird
18 Cardinal	26 Chicken Hawk
19 Purple Grackle	27 Herring Gull
19 Meadowlark	31 Loggerhead Shrike
21 Goldfinch	31 Field Sparrow

APRIL

1 Vesper Sparrow	11 Downy Woodpecker
2 Fox Sparrow	12 Sapsucker
2 Towhee	13 Barn Swallow
2 Red-winged Blackbird	15 Brown Thrasher
2 Phoebe	16 Myrtle Warbler
3 Mourning Dove	21 Bobwhite
5 Chipping Sparrow	22 Spotted Sandpiper
5 Hermit Thrush	23 Tree Sparrow
6 Cowbird	26 Red-headed Woodpecker
6 Golden-crowned Kinglet	27 Golden-crowned Kinglet de-
6 Brown Creeper	parted
7 Screech Owl	27 Sapsucker departed
8 Kingfisher	29 Black and White Warbler
10 Flicker	30 Warbling Vireo
10 White-breasted Nuthatch	30 Brown Creeper departed

MAY

1 Chimney Swift	5 Ruby-crowned Kinglet de-
1 Least Flycatcher	parted
1 Bittern	5 Yellow Palm Warbler
2 Ruby-crowned Kinglet	5 Chestnut-sided Warbler
2 White-throated Sparrow	5 Cape May Warbler
2 Baltimore Oriole	5 Magnolia Warbler
2 Catbird	6 Wood Pewee
2 Kingbird	6 Crested Flycatcher
2 Scarlet Tanager	13 Yellow-throated Warbler
3 House Wren	13 Bay-breasted Warbler
3 Yellow Warbler	13 Bobolink
3 Blackburnian Warbler	13 Rose-breasted Grosbeak
3 Redstart	14 Indigo Bird
3 Black-poll Warbler	15 Wood Thrush
3 Tennessee Warbler	15 White-crowned Sparrow
3 Nashville Warbler	17 Tennessee Warbler departed
3 Black-throated Green Warbler	17 Rose-breasted Grosbeak de-
4 Red-breasted Nuthatch	parted
4 Black-throated Blue Warbler	17 Red-breasted Nuthatch de-
4 Orchard Oriole	parted
4 Snowbird departed	18 White-throated Sparrow de-
	parted

18 Chestnut-sided Warbler departed	21 Myrtle Warbler departed
19 Cape May Warbler departed	22 Least Flycatcher departed
19 Nighthawk	24 Cedarbird
19 Yellow throated Vireo	26 Whip-poor-will
19 Red-eyed Vireo	26 Black-poll Warbler departed
19 Canadian Warbler	27 Yellow-billed Cuckoo
20 Alder Flycatcher	29 Black-throated Green Warbler departed
20 Pine Warbler	30 Hermit Thrush departed

Total number of migrants seen, 82

A QUESTION OF SYNONYMS.

BY J. A. NIEUWLAND.

Following the lead of Dr. Rydberg* who proposed the genus *Galeorchis* with *Orchis spectabilis* Linn. as type, Dr. Small† also rejects Rafinesque's name *Gallearis*‡ for that plant, because there was an earlier name *Galearia* Presl,|| a segregate of *Trifolium*. For that matter there was a still earlier *Gallearia* Heist, (1748), and since Rafinesque's time another such for a group of Euphorbiaceous plants.§ Rafinesque's name *Calistachya*, (1808) of which *C. virginica* (or *Veronica virginica* Linn.) is the type has not been admitted and the *Leptandra* Nuttall (1818) given preference, because there was a *Callistachys* Vent. (1803).¶ for a similar reason to that stated above. Whether *Gallearis* and *Gallearia*, a four syllabled word and the other of five, though of common derivation, are so sufficiently alike as to constitute synonyms, need not be decided here, but may be left to the reader to form his own opinion. As a matter of note we may mention that the spoken name may be regarded as the name of the plant, for one of the

* Rydberg. P. A. Britton's Manual Fl. N. U. S. 292 (1901).

† Small, J. K. Flora S. E. U. S. p. 312 (1903).

‡ Rafinesque, C. S. Fl. Tell. p. II. p. 39, (1836).

|| Presl. Symb. Bot. I. 49, (1830).

§ Zoll. & Mor. Syst. Verz. Zoll. 19 (1845-46).

¶ This name was translated into *Calistachya* Sm. Trans. Linn. Soc. IX, 267 (1808). The latter example is not perhaps as typical as the former.

principal uses for a name at all is the same spoken word. If two names sound alike they may be considered as synonyms; for synonyms are principally to be avoided because of confusion of an enunciated appellations. Otherwise, a system of distinguishing plants more satisfactory perhaps for tabulation purposes might be suggested such as is applied to fixed stars. In any case the names *Galearis* and *Galearia*, *Calistachya* and *Callistachys* are referred to here in regard to another instance of synonymy in which a stronger reason for regarding names as synonyms has not been admitted by our manuals, and notably the two manuals already referred to.

The name *Wolffia* Horkel, (1839) was antedated by a *Wolfia* Dennst. (1818), a *Wolfia* Sprengel, (1825) and a *Wulffia* Necker (1799). Though not perhaps named after the same person, the three above-mentioned are practically identical, and to most of us there will seem less of difference between these, whether written with an *o* and two *f's* or a *u*, than there was the difference between *Galearis* and *Galearia* on the ground either of derivation or spelling. It would seem then that if one rejects *Galearis*, one would have greater reason for rejecting the name *Wolffia* for the Lemnaceous plants.

In fact this genus of rather insignificant plants has been rather unfortunate with the number of synonyms, applied to it as the following resumé of names will show.

Bruniera Franch, in Billotia 25, (1864).

Wolffia Horkel ex Schleid. Linnaea XIII 389 (1839) = *Wolffia* Kunth Enum. Pl. III. 4 (1841) not *Wolfia* Dennst. Schluess. Hort. Malab. 38. (1818) nor *Wolfia* Sprengel, Syst. I. 808 (1825) nor *Wulffia* Necker, Elem. I. 35 (1790).

Grantia Griff. ex Voigt Hort. Suburb. Calc. 692 (1845) et Notul III. 223 (1851) not *Grantia* Bois. Diag. Ser. I, vi. 79 (1845).

Horkelia Reichenb. ex Bartl. Ord. 76 (1830) not *Horkelia* Cham & Schlecht in Linnaea II., 26, (1827).

Bruniera columbiana (Karsh.)

Wollfia columbiana Karsten.

Grantia Columbiana (Karst.) MacM. (1892).

Bruniera punctata (Griseb.)

Wollfia punctata Griseb.

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